Biological Inputs in Argentina: Perspectives of Producers and Companies Facing the Competition of Agrochemicals

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Abstract

In Argentina, the development and production of agricultural biological inputs (biopesticides and biofertilizers) have been known for several decades. However, in the past decade, there has been a growing interest in these products from the State, scientific and technological organizations, companies in the sector, and certain agricultural organizations.
The rising interest in biological inputs occurs within a broader context of increasing demand for reducing the environmental footprint of agricultural production. In this scenario, the bioeconomy emerges as a new development strategy for the country, given Argentina's abundant and diverse availability of biomass.

In the last ten years, biological inputs have begun to appear on government agendas (Goulet et al., 2020), leading to the creation of programs and institutions regulating their use, such as the Advisory Committee on Biological Inputs for Agricultural Use (CABUA).

Scientific and technological organizations, including the National Institute of Agricultural Technology (INTA), the National Scientific and Technical Research Council (CONICET), and National Universities, have also intensified their research efforts in developing biological inputs. These institutions currently boast more than 55 developments at various stages of progress (Starobinsky et al., 2024).

In the private sector, a growing number of companies have added biological inputs to their product portfolios, especially large national or multinational suppliers of agricultural inputs. Additionally, small and medium-sized enterprises specifically targeting the biological input market have emerged, many of which are organized under the Argentine Chamber of Biological Inputs. On the demand side, the use of biological inputs is increasingly discussed in forums held by producer organizations, such as the Argentine Association of Direct Sowing Producers and interprofessional crop organizations for soybeans, rice, and maize, among others.

In summary, there is a growing presence of biological inputs in Argentina, mirroring global trends.

However, most of Argentina's agricultural production, particularly extensive crops such as soybeans, maize, wheat, sunflower, sorghum, and rice-which form the backbone of the country's export structure-is conducted under a technological model that relies heavily on chemical inputs. This reliance is evident in the increased use of pesticides and chemical fertilizers

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per hectare, within a context of lax regulation and oversight.

Thus, while advances in regulating and promoting the use of biological inputs in agriculture are evident, no corresponding efforts to reduce the use of chemical inputs have been identified (Goulet & Hubert, 2022). Consequently, the biological input industry in Argentina appears to be subject to competition based on price and efficacy against chemical alternatives, which have the advantage of being well-established and widely adopted by farmers. This dynamic is reflected in the lower market penetration and participation of biological inputs in Argentine production, even when compared to other countries in the region, such as Brazil and Chile (Starobinsky et al., 2024).

In this context, this study offers an exploratory analysis of the perspectives of biological input companies and agricultural producers who use or might potentially use these products. Specifically, it aims to examine the trajectory of industrial investments in the development of biological inputs in Argentina (Temple & Fernandes, 2024). On the one hand, the study seeks to identify the strategies employed by these companies to strengthen their presence in the local market and their perspectives on competition with chemical inputs. On the other hand, it aims to understand the viewpoints of agricultural producers engaged in extensive cropping systems regarding their experiences and expectations with biological inputs.

The study is based on an analysis of specialized press sources, particularly two periodicals targeting the sector: *AgrofyNews* and *Bichos de Campo.* Additionally, it draws on a series of exploratory interviews with companies, producer organizations, and agricultural producers, as well as participant observation in forums and meetings of sector stakeholders, such as the National Meetings on the Production of Extensive Crops with Biological Inputs and Sustainable Strategies (EnBio).

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